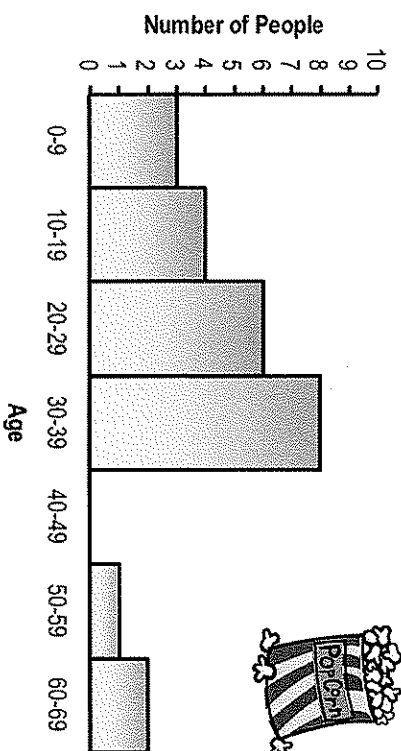


Histograms

Features

Ages of People Attending a Movie



Definition: A histogram is a data display in which the labels for the bars are numerical intervals.

Important Features: A histogram has solid bars like a bar graph. However, there are no spaces between the bars unless no data is given for an interval. The intervals are listed below each bar on the x-axis. Exact values cannot be read because of the clustering of data. The y-axis is helpful for determining the value at the height of each bar.

Advantages: A histogram can be easy for students to read. Numerical data can be clustered into intervals and represented together on a graph. Additionally, large amounts of data can be represented.

Common Misconceptions by Students: Students must pay attention to the intervals used on graphs in order to accurately understand the values being represented. Students may not pay attention to the intervals on the y-axis and think it is always labeled in multiples of one. They also may not understand that the intervals on the x-axis are a range of numbers that include the numbers seen and all numbers between. Many students may think a histogram is exactly the same as a bar graph (which displays categorical data rather than numerical data) and try to read or create it in the same manner.

Creating a Histogram

- 1) Make a frequency table of the data by selecting a range that will contain all of the data and then divide it into equal intervals. In the example above, the range of ages is from 0 to 69 so equal intervals of 10 years were selected.

Age of People Attending a Movie		
Age Ranges	Tally	Frequency
0 - 9		3
10 - 19		4
20 - 29		6
30 - 39		8
40 - 49		0
50 - 59		1
60-69		2

- 2) Using graph paper, draw an x-axis where each box will represent an interval of numbers to represent the ranges.
- 3) Draw a y-axis with a scale of numbers appropriate for the data. Common scales are multiples of 1, 2, 5, 10 or 20.
- 4) Draw each bar on the histogram to correlate the intervals with the frequency of occurrence.
- 5) Title the graph and the x-axis and y-axis.